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AmerGen SM

An Exelon Company

February 12, 2007
5928-07-20026

10 CFR 50.73

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

THREE MILE ISLAND NUCLEAR STATION, UNIT 1 (TMI-1)
OPERATING LICENSE NO. DPR-50
DOCKET NO. 50-289

SUBJECT: LICENSEE EVENT REPORT (LER) NO. 2006-003-00
"Automatic Reactor Trip Due to a Design Application Deficiency Within the Reactor Coolant Pump Power Monitors Initiated by an Off-Site Grid Disturbance"

This report is being submitted in accordance with 10 CFR 50.73 (a)(2)(iv)(A). For additional information regarding this LER contact Adam Miller of TMI Unit 1 Regulatory Assurance at (717) 948-8128.

Sincerely,

Thomas J. Dougherty
Plant Manager

TJD/awm

ATTACHMENT: List of Regulatory Commitments

cc: TMI Senior Resident Inspector
Administrator, Region I
TMI-1 Senior Project Manager
File No. 07011

JE22

SUMMARY OF AMERGEN ENERGY CO. L.L.C. COMMITMENTS

The following table identifies commitments made in this document by AmerGen Energy Co. L.L.C. (AmerGen). Any other actions discussed in the submittal represent intended or planned actions by AmerGen. They are described to the NRC for the NRC's information and are not regulatory commitments.

COMMITMENT	COMMITTED DATE OR "OUTAGE"
No regulatory commitments are being made in this submittal.	N/A

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Three Mile Island, Unit 1	05000289	1 OF 3

TITLE (4)

Automatic Reactor Trip Due to a Design Application Deficiency Within the Reactor Coolant Pump Power Monitors Initiated by an Off-Site Grid Disturbance

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
12	13	2006	2006	- 003 -	00	02	12	2007	FACILITY NAME N/A	DOCKET NUMBER N/A

OPERATING MODE (9)	N
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)	OTHER
20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Adam W.Miller of TMI-1 Regulatory Assurance	(717) 948-8128

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 1748 hours on December 13, 2006, the Three Mile Island, Unit 1 (TMI-1) reactor tripped from 100% power following a short duration power disturbance on a 230 kV transmission line located approximately 4 miles from TMI-1. This short duration power disturbance was caused by the failure of a 230 kV transmission line cable splice, which resulted in a single-phase ground fault. This short duration ground fault affected power supplied to the reactor coolant pump motors, which in turn caused actuation of the Reactor Coolant Pump Power Monitors (RCPPM). The RCPPM's actuation sends a signal to the Reactor Protection System (RPS) to trip the unit if a decrease in reactor coolant pump motor power consumption is detected. This reactor trip is designed to protect the fuel rods from overheating upon a sudden loss of Reactor Coolant flow. The RCPPM design includes a time delay to prevent inadvertent reactor trips due to short duration electrical disturbances, which would not affect the reactor coolant pump's ability to maintain adequate Reactor Coolant System flow. The RCPPM time delay has a maximum setting of less than 525 milliseconds. The root cause of the event is a design application deficiency within the RCPPM. The RCPPM circuit design focuses on fuel protection and specifies a maximum time delay, but does not consider the effects of a grid transient of short duration. The RCPPM calibration procedure will be revised to establish a minimum allowed time delay for the Reactor Coolant Pump Power Monitor circuit. A maintenance activity has been scheduled for the next available opportunity, but no later than the October 2007 refueling outage, to calibrate the RCPPM using the revised setpoint tolerance. The actuation of the Reactor Protection System was reported to the NRC in accordance with 10CFR 50.72 (b)(2)(iv)(B), reference EN# 43050. Submittal of this LER constitutes reporting to the NRC in accordance with 10 CFR 50.73 (a)(2)(iv)(A).

EVENT DESCRIPTION

Plant Conditions before the event:

Babcock & Wilcox – Pressurized Water Reactor – 2568 MWth Core Power
Date/Time: December 13, 2006/1748 hours
Power Level: 100% steady state power prior to the event
Mode: Power Operations
There were no structures, systems, or components out of service that contributed to this event.

At 1748 hours on December 13, 2006, the Three Mile Island, Unit 1 (TMI-1) reactor tripped from 100% power following a short duration power disturbance on a 230 kV transmission line located approximately 4 miles from TMI-1. This short duration power disturbance was caused by the failure of a 230 kV transmission line cable splice, which resulted in a single-phase ground fault. This short duration ground fault affected power supplied to the reactor coolant pump motors, which in turn caused actuation of the Reactor Coolant Pump Power Monitors (RCPPM) *[JC]. The RCPPM's actuation sends a signal to the Reactor Protection System (RPS) to trip the unit if a decrease in reactor coolant pump motor power consumption is detected. This reactor trip is designed to protect the fuel rods from overheating upon a sudden loss of Reactor Coolant flow. The RCPPM design includes a time delay to prevent inadvertent reactor trips due to short duration electrical disturbances, which would not affect the reactor coolant pump's ability to maintain adequate Reactor Coolant System flow. The RCPPM time delay has a maximum setting of less than 525 milliseconds.

Plant systems responded properly to the reactor trip transient and the plant was stabilized at hot shutdown conditions.

The actuation of the Reactor Protection System was reported to the NRC in accordance with 10CFR 50.72 (b)(2)(iv)(B), reference EN# 43050; and submittal of this LER constitutes reporting to the NRC in accordance with 10 CFR 50.73 (a)(2)(iv)(A).

CAUSE OF EVENT

The root cause of the event is a design application deficiency within the RCPPM. The RCPPM circuit design focuses on fuel protection and specifies a maximum time delay, but does not consider the effects of a grid transient of short duration. Although the grid transient only lasted for approximately 60 milliseconds, the RCPPM circuitry response to this grid transient resulted in the actuation of the RCPPM. The calibration procedure for the time delay instrumentation of the RCPPM does not specify a minimum setting.

ANALYSIS / SAFETY SIGNIFICANCE

The reactor protection system functioned as designed to initiate the automatic reactor trip in response to the trip signals from the RCPPM. The reactor coolant pumps did not actually trip. There were no engineered safeguard system actuations. The post-trip equipment response was within the expected range, operator response was appropriate, and stable hot shutdown conditions were established. The existing plant risk assessment (PRA) assumptions for reactor trip probability bound this event. The PRA assumes a probability of 4.28E-01/ yr for reactor trip frequency. This is based on generic industry and plant specific historical trip data. Therefore, this event had minimal safety significance.

This event does not involve a safety system functional failure, which would be reported in accordance with

NEI 99-02. All safety-related equipment performed in accordance with design in response to the event.

CORRECTIVE ACTIONS

Prior to plant restart, the RCPPM was functionally tested to verify that its safety function was operable.

The faulted 230 kV transmission line was repaired and returned to service.

The RCPPM calibration procedure will be revised to establish a minimum allowed time delay for the Reactor Coolant Pump Power Monitor circuit. A maintenance activity has been scheduled for the next available opportunity, but no later than the October 2007 refueling outage, to calibrate the RCPPM using the revised setpoint tolerance.

PREVIOUS OCCURENCES

There are no previous TMI Unit 1 reactor trips related to problems associated with the design application deficiency within the RCPPM in its response to a transmission line transient.

* Energy Industry Identification System (EIIS), System Identification (SI) and Component Function Identification (CFI) Codes are included in brackets, [SI/CFI] where applicable, as required by 10 CFR 50.73 (b)(2)(ii)(F).